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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/657,205	09/09/2003	Narutoshi Fukuzawa	242335US0	9140

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EXAMINER	
ANGEBRANNDT, MARTIN J	

ART UNIT	PAPER NUMBER
1756	

DATE MAILED: 10/24/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/657,205	FUKUZAWA ET AL.	
	Examiner	Art Unit	
	Martin J. Angebranndt	1756	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *09 August 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-3 and 5-16* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3 and 5-16* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

1. The response of the applicant has been read and given careful consideration. Responses to the arguments relating to the rejection are presented after the first rejection to which they are directed. The amendment to the specification is accepted. Rejections of the previous office action, not repeated below are withdrawn based upon the amendment and acc0ompaniying arguments.

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 5 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

This claim should state that the two heterocyclic rings are both benzoxazole. The current claims mostly repeat limitations in claim 1 and adds only that the heterocyclic groups are the same. Claims 1 limits this case to where they are both benzoxazole.

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 1-3,5 and 8-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 10-188339, in view of Sano et al. JP 06-044608.

JP 10-188339 teaches the use of cyanine dyes including indolene, benzodiazole and benzooxazole dyes embraced by formula I, where A moeties form a phenyl or naphthyl ring, the

counterions can be halogen and the like. The N substituents can be C_{1-6} alkyl. [0007,0016,0033-0034]. Formula (3) is a benzodiazole trimethine dye, formula (4) is a indolenic trimethine dye, and formula (5) is a benzooxazole trimethine dye, where the N substitutents are methyl or ethyl and the counterion is iodine. [0043]. In the examples 1-4, a polycarbonate substrate is coated with the dye layer, a gold reflective layer and a UV curing layer applied [0041]. In example 4, dye 4, (of formula 5) is used. [0042-0043]. The use of inorganic layers as interference or solvent resistance layers is disclosed [0036-0037].

Sano et al. JP 06-044608 teaches a dielectric layer (31) formed on the recording layer (2) and another dielectric layer (32) between the reflective layer (4) and the UV curable layer (5). The dielectric layers are inorganic films [0011] and increases the adhesion between the layers of the media and prevents damage due to high humidity/temperature [0004-0006,0014]. The recording layers can be cyanine dyes [0009].

It would have been obvious to one skilled in the art to modify example 4 of JP 10-188339 by adding dielectric layers on one of both sides of the reflective layer as taught by Sano et al. JP 06-044608 with a reasonable expectation of increasing the adhesion between the layers and preventing damage to the medium based upon humidity/temperature based upon the direction to the use of inorganic layers within JP 10-188339 at [0036-0037] and the discussion of cyanine dyes in both of the references. Further, it would have been obvious to one skilled in the art to modify the resulting example by replacing the N alkyl groups with butyl based upon the disclosure of equivalence for the alkyl groups at [0017].

Claim 1 does not require that the light transmitting layer be directly in contact with the dielectric layer nor does it state that the medium is capable of being recorded and/or reproduced

thereon with laser light of 390-420 nm incident upon the light transmitting layer surface. The claims merely set forth a material limitation for the light transmitting layer and does not speak to the remainder of the medium. With respect to the limitations regarding the refractive index, these are inherent properties of the dyes and while the media must have a reasonable expectation of functioning with a laser within the 380-420 nm wavelength range, the claims to the article embrace the media irrespective of what wavelength they are used with.

The applicant argues the test data. The examiner notes that the dye of formula (5) in section [0043] of JP 10-188339is identical to dye AA-1 Of the instant specification. Further the articles claims are not limited to use with a particular laser or wavelength.

6. Claims 1-3,5,6 and 8-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 10-188339, in view of Sano et al. JP 06-044608, further in view of Sato et al. '839.

Sato et al. '839 teach the increase in the solubility of cyanine dyes when the N substiuents are different from one another (abstract and 2/4-15). The addition of stabilizers (quenchers) to recording layers is disclosed as enhancing the stability of recording layer (21/57-23/35).

In addition to the basis set forth above, it would have been obvious to modify the media rendered obvious by JP 10-188339, in view of Sano et al. JP 06-044608 by adding a stabilizer (quencher) to improve the stability of the cyanine dyes based recording layer as taught by Sato et al. '839. Further, it would have been obvious to one skilled in the art to modify the resulting example by using a butyl moiety as the N substitutent on the benzoxazole moiety and replacing the other benzoxazole moiety with either an indolene or benzodiazole moiety with a methyl

and/or ethyl moieties as the N substitutent based upon the direction in formula I of JP 10-188339 and the direction within Sato et al. '839 that this increases the solubility of the dyes.

7. Claims 1-3,5 and 7-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over either of Berneth et al. '807, in view of JP 10-188339.

Berneth et al. '807 teach optical recording media read from the side opposite the substrate which increases the resolution (near field recording) [0010-0011,0018]. The use of cyanine dyes in the recording layer is disclosed [0024]. The recording takes place between 360 and 460 nm with a high NA. [0018]. Embodiment 7 uses a trimethine cyanine dye, have the recording layer on the substrate, a 40 nm silicon dioxide dielectric layer (12) applied to that and a protective layer adhered via an adhesive layer and was recorded on using a 405 nm laser from the light transmitting layer side [0031-0038,0040-0044,page 7]. The dielectric layer protects the recording layer.

It would have been obvious to one of ordinary skill in the art to modify the examples of Berneth et al. '807 by using other trimethine cyanine dyes embraced by formula I within JP 10-18, including those exemplified or rendered obvious by JP 10-188339 as discussed above with a reasonable expectation of forming a medium useful with a 405 nm laser as shown in example 7 Further, it would have been obvious to record on the resulting media using lasers emitting in the 380-425 nm range, particularly the 405 nm laser exemplified.

In addition to the basis above, the examiner notes that the dye used in example 7 differs from those tested by the applicant in table 1 of the instant specification. The Dye used is a benzothiozole analog of dye AC-1. If the applicant can show a difference when these are used ina declaration, the rejection made be obviated. The examiner notes that there is no showing for

Dye AC-1 or any of the asymmetric dyes exemplified by the applicant in table 1. The applicant argues that a wide range of dyes are disclosed in Berneth et al. '807, but neglects that there is a specific example which presents an opportunity for comparative data.

8. Claims 1-3 and 5-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over either of Berneth et al. '807, in view of JP 10-188339, further in view of Sato et al. '839 and Sabi et al. EP 1103962.

Sabi et al. EP 1103962 teaches a topside accessed optical recording medium having the structure shown in the figures. A dielectric layer is provided between the recording layer and the protective layer to prevent the dissolution/damage of the recording layer during coating of the UV curing resin protective layer [0011,0042]. Adjustment of the thickness of the dielectric layer can also be used to optimize the signal amplitude [0064].

In addition to the basis set forth above, it would have been obvious to modify the media rendered obvious by the combination of Berneth et al. '807 and JP 10-188339 by adding a stabilizer (quencher) to improve the stability of the cyanine dyes based recording layer as taught by Sato et al. '839. Further, it would have been obvious to one skilled in the art to modify the resulting example by using a butyl moiety as the N substitutent on the benzoxazole moiety and replacing the other benzoxazole moiety with either an indolene or benzodiazole moiety with a methyl and/or ethyl moieties as the N substitutent based upon the direction in formula I of JP 10-188339 and the direction within Sato et al. '839 that this increases the solubility of the dyes and further the evidence in Sabi et al. EP 1103962 describes the damage/degradation of the recording layer by direct application of the protective layer upon I and that the use of a dielectric interlayer solves this problem.

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Kamezaki et al. JP 03-146393 teach the use of cyanine dyes in the examples, including the benzooxazole trimethine dye (1) in the lower right column on page 3. The N substitutents are both ethyl and the counter ion iodine.

Tominaga et al. JP 10-168450 teach the use of cyanine dyes including indolene, benzooxazole dyes embraced by formula 19, where the counterions can be I- and the like. The N substituents can be C_{1-10} alkyl. [0032-0034]. A trimethine indolene dyes is shown in formula 20 [0041] and an oxazole dyes is shown in formula 22, where the N substitutent is propyl [0048-0050].

JP 60-204395 teaches the provision of a silicon dioxide layer on both sides of the cyanine dye based recording layer.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Martin J. Angebranndt whose telephone number is 571-272-1378. The examiner can normally be reached on Monday-Thursday and alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Huff can be reached on 571-272-1385. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Martin J Angebranndt
Primary Examiner
Art Unit 1756

10/20/2006